

ABSTRACT OF THE DISCLOSURE

An instrument for performing highly accurate PCR employing a sample block in microtiter tray format. The sample block has local balance and local symmetry. A three zone film heater
5 controlled by a computer and ramp cooling solenoid valves also controlled by the computer for gating coolant flow through the block controls the block temperature. Constant bias cooling is used for small changes. Sample temperature is calculated instead of measured. A platen deforms plastic caps to apply a minimum
10 acceptable threshold force for seating the tubes and thermally isolates them. A cover isolates the block. The control software includes diagnostics. An install program tests and characterizes the instrument. A new user interface is used. Disposable, multipiece plastic microtiter trays to give individual freedom to
15 sample tubes are taught.